BEWARE OF ACETYLENE!

A GREAT STOCK SPECULATION UPON A FOUNDATION OF "GAS."

Not a Pound of Calcium Carbide Nor Cubte Poot of Acetylene Gas Has Yes Been Produced Commercially in This Country, but, Notwithstanding This, the Electro Gas Company and Its Allies Have Arranged to Float Between \$20,000,000 or \$39,000,000 Worth of Stocks-Experts Question Any Man's Ability to Produce the Carbide at a Reasonable Price-Questions to Be Answered Before Acetytene Stocks Will Bo a Safe Investment

THE SUN desires to sound a warning note to all persons who may be about to invest money in stock companies which are either formed or forming, to go into schemes of any kind in con nection with the production, sale, or use of the newly exploited gas, acetylene, or the material from which it is produced, calcium carbide.

In doing this THE SUN does not propose to raise any question concerning acetylene as an Higminating material dindependently of its haps even greater, in the hands of commercial chemists, for the production of other things for the use of mankind. Viewed from these standpoints calcium carbide and acetylene are among the most interesting of modern products and are in commercial chemistry and in the great indus-

It is such facts as these, skilfully used, which have been made a basts for a great network of schemes formulated by promoters, in which the public is now being asked to invest.

That these schemes have been in incubation has been known for several months, but it is only within a few weeks that evidence came to hand that they were about to hatch in great quantities.

like evidence, from a publication in the World. Three weeks ago there appeared a full-page story, telling all about the wonders of acety lene, and intimating in as strong a manner as the promoters of the acetylene schemes dared, that there must be enormous profits in every and any investments which might be made in any kind of a stock which contains the magic word "acetylene." Its character and location were sufficient to awaken suspicion.

Every person who is asked to invest it with which the country is soon to be flood ed, should hear these two pertinent facts in mind: First, that although the so-called discovery of the process for making calcium carbide was made several years ago, and the Electro Gas Company, which owns the patonts taken out to cover the discovery, has been in existence for about a year, there is not to-day in existence anywhere in this country a commercial plant where calcium carbide is being produced, and not a pound of it is for sale except at chemists' prices, and not a cubic foot of acetylene gas is being produced and sold commercially; and, secondly, that no person who is directly and responsibly connected with the owners of the Electro Gas Company will give any estimate whatever as to the cost of the calin carbide or the resultant gas, which he will guarantee to be either a correct figure or

One other very pertinent fact must be taken into consideration also. This is that the companies which are about to be formed and some that are now offering stock for sale have none of them bought or agreed to buy from the parent company any rights except such as may pertain to the use of calcium carbide and acetylene for the production of light, heat, and power, and no matter how many profitable uses may be found for the new product-and it is in these other directions that value will be found -- no purchaser under any of for or soid, will get one particle of benefit therefrom. If such values develop, the purchaser who is now invited to buy "unsight. will see new "carbide and acetylene companies licensed to enter his own field and to make the money which he is by implication led to believe would be his if he takes on faith the glowing fairy tales which the promoters now set before him.

HOW THE SCREME WAS INCUBATED.

In order to deal directly with themen who are at the bottom of the whole matter, and who are making hundreds of thousands of dollars from the sale of "rights" under the patents which have been taken out upon the calcium carbide and acetylene processes, THE SUN sent directly These men are Charles P. Dietrich, the Baron

E, J. Jermanowski, Edward N. Dickerson, and Dr. J. J. Suckert, all of this city.

"I am the President and a director in gas companies having an aggregate capital of about \$16,000,000," said Mr. Dietrich. "The Baron Jermanowski has his fortune in gas interests, and was, until a few weeks ago, President of the Equitable Gas Company of this city, in which I am also a director. We are gas men, and when about a year ago Mr. E. N. Dickerson, a patent lawyer, who is also a director in the Equitable Company, came to us and

tor in the Equitable Company, came to us and said that a man named Willson of the Willson Aluminum Company of Leaksville, N. C., had discovered a way to make calcium carbide in large quantities cheaply and that the gas to the made from this could probably be used as an enricher for our street gas, to take the place of nanhtha, we were at once interested."

Then Mr. Dietrich told in detail how he had called together a number of his associates in the gas business including Walton Ferguson, John Sloane, F. P. Alcott, R. Somers Hayes, Samuel Thorne, and others, talked the matter over and then agreed (eight of them in all, including Mr. Diekerson) to buy the claims of the Willson aluminum Company to the new process if they became satisfied that it had even enough in it to make it promise in case it fell into the hands of rivals to be a dangerous process to their gas interests.

Mr. Dietrich and two of his associates went to

the hands of rivals to be a dangerous process to their gas interests.

Mr. Dietrich and two of his associates went to Spray. N. C., where the Willson plant is situated and there under their own eyes they saw ground lime and coke put into an electric furnace and within a reasonable time a quantity of it was taken out, fused and transformed into calcium carbide.

taken out, fused and transformed into calcium carbide.

"What it cost we did not know," said Mr. Dietrich, in telling the story last week, "nor do we know to-day what it costs to make it. What we did know and what we know now is, that from so much coal and line an electric current will produce a certain quantity of calcium carbide, and that the cost, whatever it might be for the electric current, was not large, and that the product threatened our gas interests, and so we bought the patents."

The eight men spoken of formed the Electro Gas Company under the laws of West Virginia, and capitalized it at \$500,000. Forty-five percent, of the capital stock and a large payment in money went to the Wilson Aluminum people in payment for the patents.

Mr. Dietrich declares that it was not the intention of the purchasers to sell any patent rights or licenses, or in fact to de anything with

Mr. Dietrich declares that it was not the in-tention of the purchasers to sell any patent rights or licenses, or in fact to do anything with the matter except to experiment with the car-bide and satisfy themselves of its value as a gas surficher, but that word of their experiments got out, and that they were fairly forced to ac-cede to the demands of people who wanted either to secure "rights" for themselves or to get the right to form companies and sell stock to other people.

either to secure "rights" for themselves or to get the right to form companies and sell stock to other people.

The fact is that at the offices at 45 Broadway, where Mr. Districh and his associates have the headquarters of a lot of the gas companies they are interested in, they located the office of the Flectro that Company, and held a hermanent exhibition of the beauties of the acitylene gas as an illuminant, and that much was written and printed about the revolution in lighting which the new gas would produce, based upon what was said about it at those offices. Direct publicity was avoided, and when the Copartnership Directory for this year was compiled no information was given to its canvassers about the Electro Gas Company except the names of its President. Mr. Districh, and of its Secretary and Treasurer.

Mr. Districh asays he be, and to be overrun with suplications for rights to manufacture and use the new gas, but that he put all these people off until he had a satisfactory report as to the value of the gas as an enricher for water gas from Mr. Knapp of the Consoliated Gas Company, However, he and the Baron Jermanowski had not been indifferent to the needs of their friends, and a meeting of the Electro Gas Company, However, he and the Baron Jermanowski had not been indifferent to the needs of their friends, and a meeting of the stockholders of their big company here, the Equitable Gas Company, was called and an agreement was made and ratified by which the Electro Gas Company is to sell to the Equitable Company is to sell to the Equitable Company to report a section of Saoo,000.

This fact, of course, leaked out, and became a basis for a greater furor regarding acception.

A selling Agency Establisher.

"teantime, Mr. E. N. Dickerson and Dr. Suck-

based upon the mere conjectures of people as to what might be done commercially with acetylene.

"To every one who came to see me," says Mr. Dietrich, "I said the same thing: I don't know what calcium carbide costs, but take your own experts down to Spray and make your own experts down to Spray and make your own estimates. Then come back and talk to me." It is also to be noted that the Electro Gas Company, instead of building works for itself, made a contract with the Wilson Alumnum Company to supply it with all the carbide it wanted for experimental purposes for a year at \$40 a top. "We presume it doesn't cost them that much," Mr. Hietrich says.

When the people had decided to go into calcium carbide (as a stock speculation mostly) they came back and the Electro Gas Company made agreements with them by which they were to be permitted to get up companies were formed the Electro Gas Company was to receive for its licenses 15 per cent. of the capital stocks of the new companies and 10 per cent. In cash.

ent. in cash.

A cash payment on account was collected at once as a guarantee of good faith.

COMPANIES ALREADY AUTHORIZED.

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COMPANIES ALHEADY AUTHORIZED,

Under such conditions companies have been so far authorized as follows: One for Philadelphia with a capital stock of \$1,000,000, one for all of Illinois outside of Chicago with a capital stock of \$1,000,000, one for Massachusetts with a capital stock of \$1,000,000, one for Massachusetts with a capital stock of \$1,000,000 one for New Jersey with a capital stock of \$5,000,000, one for Obio with \$1,500,000 capital stock, one for Missouri with \$1,500,000 capital stock, one for Missouri with \$750,000 capital stock, one for Wisconsin with \$750,000 capital stock, one for the Greater New York, which is to operate under both the Willson and the Suckert-Dickerson patents with \$7,000,000 capital stock and one for the contemplated companies will have an additional million or more of capital stock added on behalf of the liquefying patents, and for this they each agree to pay to the United States Liquefaction Company a handsome bonus in cash and stock.

Altogether it is estimated that somewhere between \$2,000,000 and \$30,000,000 of shares are to be put upon the market within a few months. In addition to the sale on installments of the rights" so far mentioned, the two companies have sold some important rights outright for cash. Among these was a sale to the Chicago (sas people of the rights for Chicago for \$300,000 to Dickerson and Suckert. Rights were also sold outright for Albany, Troy, and Utica.

So much money was taken in that a couple of months ago a dividend upon the \$300,000 capital stock of the Electric Gas Company, and \$100,000 to any has more than \$1,500,000 capital stock of the Electric Gas Company of about 40 per cent. (\$300,000 was declared and distributed. Speculation in that stock went will. The price went to 600 or more. As the company has more than \$1,500,000 right of the file of the prospective company has more than \$1,000,000 in cash and \$1,500,000 or more. As the company has more than \$1,000,000

Niagara Falls.

Much stress is put upon the fact that such a plant is actually being built by the people who are booming acetylene schemes. This, they say, will settle the question of the cost of calcium carbide. It probably will, for the information of the insiders, but will the outsiders get the information? As long as stocks can be marketed it does not matter how much money may be lost per ton in producing a few tons per day of the carbide.

A significant fact is the continuous carbide at the carbide.

of the carbide.

A significant fact is that, according to Mr. Dietrich's own story, the only Electro Gas stock that has been sold (the New York people having agreed to hold theirs) was sold by the Willson Aluminum Company people, and they couldn't get theirs on the market too quickly, Mr. Dietrich sald, after the price went to 160 and above. Nobody has the means of knowing so well as these people have just what it costs to make the carbide by the Willson process.

This brings us to the point where we discover the "nigger in the woodpile." The greatest difficulty in the way of the realization of the fairy tales of prospective profits put forth by Mr. Dickerson and Dr. Suckert as the sales argents for acctylene rights, and by all the smaller fry who are hoping to profit by the glare of acctylene, lies in the matter of cost.

All of these bright anticipations are based upon assumptions that calcium carbide can be produced for some sum between the insignificant price of \$5 to \$7 a ton and the more serious trice of \$25 a ton. When Dr. Suckert and others began exploiting the matter in the interest of science and the sale of "rights," they declared that the former figures were about right. In the

science and the sale of "rights," they declared that the former figures were about right. In the indirect publications which they have fathered or fostered since, they have allowed the figure to run up to as high as \$25 a ton.

If they should be forced to admit that it was impossible to produce the carbidle for less than two, three, or four times this sum, all of their If they should be forced to admit that it was impossible to produce the carbidle for less than two, three, or four times this sum, all of their rosy prepositions would have to be recast. Even as it stands the men who have bargained for the State rights of Illinois have refused to go on with their work in forming a company until they can satisfy themselves as to what the real cost of carbide is, and they do not propose to rely, either, upon any figures which may be given out by the Philadelphia men as to the results which may be obtained at Niagara Falls. It is given out by the acetylene people that this plant at Niagara Falls is to be of a capacity to produce fifty tons of carbide a day, which, according to their figures, would produce gas enough to equal in candie nower all the street gas that is now used in Philadelphia. But for the present, it is afterward explained, there are only two electric furnaces to be built. These are of a new design, and it is uncertain just how much carbide each one may be able to make. So until this question is determined the company doesn't know whether it will have to build ten more or only five furnaces in all to make the fifty tons of carbide a day.

Now we will consider the latest of the statements of the acetylene people as put forth in the World. This publication was made at the instance of the Philadelphia Acetylene Light, leat and Power Company, Dr. Suckert says; but as hundreds of copies of the paper were used as circulars to hand out to seekers for "rights" when they applied at the offices of Mr. Dickerson's company, the Electro Gas Company people will have to be responsible for them. It will be observed that even in the World these people will have to be destroused as circulars to hand out to seekers for "rights" when they applied at the offices of Mr. Dickerson's company, the Electro Gas Company beople have not dared to commit themselves to any positive statement as to the cost of producing carbide even at the plant at Spray, which is owned by their own associates.

Here is what they say as to cost:

COST OF MANUFACTURE AT SPRAY.

The cost of manufacture in the primitive plant at Spray is thus figured out as the result of trats made there on a commercial scale by a number of well-known experts: COST OF ONE TON OF CARBIDE OF CALCIUM,
 1.4me, 2,000 ms.
 \$4.00

 Coke, 1,500 ms.
 \$4.00

 1.abor.
 5.50

 1.abor.
 5.00

 Interest. 8 per cent. on \$10,000.
 2.00
 arbons.
'ower, at \$10 per H. P. per aunum......
ucidentals, taxes, insurance, &c Total....

Candle per ton of carbide parter. carbide. per ton. 250 11.784 810.00

Theoretical Jewes (Frost Vivian R. Lewes (Frost Foster of Chemistry, Royal Season of Chemistry, Royal Season of Chemistry, Royal Season of Chemistry, Royal Season of Chemistry of Chemistr 11,200 ventor Prof. Chas. E. Munroe, (Professor Chemistry, Columbian University, Washington, D. C.)
William Wallace Goodwin, Philadelphia 11,500 William Waliace Goodwin, Philadelphia Major J. Turner Morehead (Fresident Wilson Aluminon Co. Leakwille, N.C.). Lawson, Weldenfeld & Co. 53 State street, Boston, and 45 Wall street, New York.

Geo. C. Knapp, & East Mach scot street emriner Chicago Gos True, and Lawson, Ph. D. J. Gorras Be Chalmot, Ph. D. J. Spran, A. Vincent, M. F. Philadelphia.

James E. Hewes electrical cupins University). James C. Carson, Jr. Philadelphia.

R. W. Hunt & Co. Chicago.

J. C. McMynn, Chicago.

A. Strom, Chicago.

DECEPTIVE STATEME 11,000 19.51 19.79 19.79

DECEPTIVE STATEMENTS PUBLISHED. Examine this list of people who are quoted, and one of the first things that will be observed is that beneath the two leading authorities quoted nearly every one else is either now engaged in prometing the formation of companies for the sale of stocks in acetylene, companies er has

President of the National Ice Machine Company, invented a process of compressing acetylene gas into liquid form in cylinders, and they formed a company known as the United States Acetylene Liquefaction Company. This is only a little company with \$4,000 capital stock, but it has already sold hundreds of thouse and of doliars' worth of "rights," and is anxions to sell more.

The business of selling "rights," and the apparatus for showing the acetylene gaslight was soon transferred entirely to the officers of the National Ice Machine Company and into the hands of E. N. Dickerson and Dr. Snekert. Here the first question that the visitor is made the with if he asks for Dr. Suckert and speaks of acetylene is, "Do you want to buy rights?" and the number of visitors is many and the twin companies have already reaped a rich harvest and are looking confidently for more.

Now comes an interesting chapter in the history of the wild speculation which has been based upon the mere conjectures of people as to what might be done commercially with acetylene.

"To every one who came to see me," says Mr.

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In the number of the same journal dated Jan. 18 this same correspondent goes more fully into this subject of cost as follows:

"On the 20 of last March, at the Franklin Institute, Philadelphia, Dr. J., Suckert, flanked by Mr. F. N. Dickerson and inventor T. L. Willson, read a paper, credited to himself and Mr. Willson, in which he stated that extended experiments in the production of calcium carbido by the heat of the electric are showed that 'one electrical horse power will readily produce twenty pounds.' He stated that with Imessone and coal dust he thought that calcium carbido to thirty pounds.' He stated that with Imessone and coal dust he thought that calcium carbido "can eventually be produced at a cost of less than Sent (complied, he said by a brick manufacturer) of the cost of producing 150 tons of calcium carbide per day, This statement showed an annual trofit of \$635,440, with the selling price of carbide at \$7 per ton! So far as this statement is concerned, which shows \$635,000 profit per annum, we think if the very low charge of \$20 a ton is added for cost of power to the cost of the carbide, which would put the cost at about the present flures, claimed as cost by the Electro Gas Company, the statement, would be more nearly correct, and instead of a profit of \$433,000 per year there would be a loss of \$204,000. The statement in question has never been corrected as publicly as it was made by the gentlemen who promulgated it, although they now admit that their carbide costs them from \$20 to \$25 a ton instead of the original \$5 to \$7. It this kit very likely that their present claims will be found about as misleading as any they have yet made. In the same address L. Suckert said: "Arrangement of the same address L. Suckert said: "The coories of the fact tha

nable amount of energy which may be example:

"'In the production of hydrogen from water, to produce one pound of hydrogen energy equivalent to 34.180 practical heat units is required, or an amount of energy equal to twenty-four electrical horse power for one hour. We can, therefore, figure that to produce a single pound of hydrogen, though the nine pounds of material (water) cost nothing, still the average price for the power would be 24 cents. As the production of CaC2 also invoives a large deficit of heat energy it may be interesting to review the chief electro-thermal facts and figures on the subject. The electro-thermal unit, the joule, is the amount of energy that is produced by one ampere passing one ohm in one second, and is equal to 0.24 of the absolute heat unit. The therm, or centigrade gram calorie, is the amount of heat that will raise the temperature of one gram of water one centigrade degree. Now, one electrical horse-power hour equals 740 watts, multiplied by 3,000 seconds, equals 2,085,000 joules multiplied by 0.24 equals 044,544 therms, which, reduced to the practical unit, the pound calorie, equals 1,421; that is, one horse power represents an amount of heat which will raise 1,421

power hour equals 740 wasts multiplied by 1,1000 seconds equals 2,485,000 joules multiplied by 0,23 equals 444,544 therms, which, results recast, readed used to the practical unit, the pound caloric, equals 1,421; that is, one horse power represents waste 1,421 that is, one horse power represents the may be the recast which will raise 1,421 pounds of water 1,421 degrees C.

"Calcium carbide requires not only the heat propose in the carbon to form the Cattle, so that 64 pounds of \$130,000 calories for smelting the Ca from its oxide, but also 33,500 additional for combining the carbon to form the Cattle, so that 64 pounds calcium carbide required to raise themselves in the second of the carbon to form the second will actually contain as one observed which the reaction takes place is available for supplying the heat required to raise the mass to mixturely so find its carbon pound, the cost of production also industrial the second of the compound, the cost of production also industrial the second of the compound, the cost of production also industrial the second of the compound, the cost of production also industrial the second of the compound, the cost of production also industrial the second of the compound of the control of Coby the combination of one that the second of the compound of the cost of production also industrial the control of Coby the combination of one that the second of the compound of the cost of

promises, which must have been in either malice or ignorance.

"We trust it is now becoming plainer why these people stick to that small plant at Spray, where they make figures on an arbitrary basis of power—the simple old water wheel and mil race—instead of opening up here where their power could and would be measured. At Spray who is the expert who has measured the water and marked the distinction between one or five revolutions of that simple old wheel? I hear some of them are to get at that point now, but in the mean time this sly old carbide coon has laid in his 'nuts,' received for 'rights,' for the winter.

winter. "In view of the above facts and the circumstantial evidence heretofore adduced. I think my nosition will be found correct that the public has been misled and grossly deceived, and that hundreds of thousands of dollars have been taken in by the Willson calcium carbide promoters upon implied or direct false promises."

"Acetyiene" is said by Dr. Suckert to be prejudiced. Assuming that this may be true, let us look to other sources for estimates of the cost of calcium carbide. Incidentally as bearing upon this, a statement made by Oscar F. Zollikoffer to a Sun reporter is interesting. Mr.

Zollikoffer is secretary of the Cousolidated Gas Company of this city, a company which has \$33,000,000 worth of capital stock, all of which must be at hazard if the Electro Gas Company's must be at hasard if the Electro Gas Company's claims are correct.

"There is no question," said Mr. Zollikoffer, "about the value of acetylene as an illuminant, but we looked very carefully into the claims made for it from the commercial side, and we decided that is had no value to us."

Mr. Dietrich himself says that the Pintsch Compressing Company, which has aimost the entire business of the country in supplying compressed gas for the lighting of railroad and street cars and other insulated places, was invited to look into the claims for acetylene, and that the Pintsch company decided that they had no use for it.

OUTSIDE ESTIMATES OF COST. OUTSIDE ESTIMATES OF COST.

The electric lighting companies had also a direct interest in knowing what sort of a commercial competitor acetylene might be, and the Edison Association of Illuminating Companies asked 8. D. Greene, the general manager of their lighting department, to prepare for them such information as he thought necessary upon this subject. In his introduction to the collation of matter which he presents he says:

"The ceneral use of acetylene gas by gas manufacturers will greatly depend upon the price at which it can be produced. It has been stated that at from \$5 to \$10 per ton, or equal to the price of cannel coal, it would be very desirable. A statement is attached regarding cost, based upon experiments which have been made with the assistance of some of our engineers."

He then gives a table of cost, based upon eight tests, as follows:

Estimate of cost of producing calcium carbide:

Estimate of cost of producing calcium carbide:

Total cost of producing i ton of calcium carbide.

To this must be added cost of handling, shipping, extracting and storing gas.

Calcium carbide is sold in this city at present at 50 cents a pound, and in large quantities might perhaps be bought at half of that price or \$500 per ton. In Europe it is produced upon a scale as large as the demands for it require, and has been for a number of years. Profitable uses for it seem hardly to have kept pace with its production.

uses for it seem hardly to have kept pace with its production.

Calcium carbide sells in Europe at 9 cents a pound, and the great factory for it is the aluminum works at Neuhausen, where water power costs but \$5 per horse-power a year.

Prof. V. B. Lewes of London, who is so confidently misquoted in the statement in the World as saying that calcium carbide can be produced for \$20 aton, says in a recent paper:

"The data as to cost, which have been from time to time supplied from America, vary in the most extraordinary way, and between extremes which are both equally ridiculous."

I have information which I believe to be reliable, to the effect that in Germany the carbide liable, to the effect that in Germany the carbide

liable, to the effect that in Germany the carbide is being made at 170 marks per ton, or practi-cally £8 10s. (\$42.50), and experiments made in cally £8 10s. (\$42.50), and experiments made in England point to the possibility of making it in bulk at about £9 10s. (\$47.50) a ton. The figures are strengthened by the consideration that the Swiss Aluminum Company are seiling it, packed in hermetically scaled ting at 6d, per kilogramme, which means £25.\$125) at on, and it is manifest that this could not be done if the cost of production were above one-third of the seiling raise.

selling price."

If any of these adverse estimates of cost be

which the operators in acetylene "rights" have raised?

QUESTIONS OF PRACTICABILITY AND SAPETY.

Up to this point no consideration has been made of the practicability of the proposed methods by which acetylene is to be put in use. A person who reads the literature of the subject which the acetylene people have been industriously distributing would never imagine that there could be a question as to the success of the proposed methods of use. The addition of acetylene to street gas to enrich such gas and to raise its candle power is treated as if it were an accomplished fact; the serving of pure acetylene in house pipes and the burning of it in brilliant flames are assumed to be matters of no difficulty, and in the same way pretty pictures are shown of buildings lighted by just attaching a cylinder of the compressed gas to the service pipes, of street cars driven, lighted, and heated by this same means, and of bicycles going along with brilliant headilghthe fed from microscopic cylinders of the liquefied acetylene. These are all interesting as suggestions, but as matters of practical accomplishment they are not true.

Mr. Dietrich himself says that as an enricher for coal gas acetylene is uscless. His experts have told him that it could be used in the greater field of enriching water gas, and that at 200 a ton for the carbide it would be cheaper than naphtha at four cents a gallon. Many other experts have been experimenting with acetylene in this same field, and they declare that it

owner gas.

Dr. W. H. Birchmore, who is a recognized authority upon these subjects, was interviewed by the New York Times recently regarding acetylene. These are his conclusions:

"I. Acetylene gas is useless for the purpose of re-enforcing or enriching ordinary water gas.

"I. Acetylene gas is at least equal, and probably superior, to sunlight for purposes of photography.

"Acetylene gas is at least equal, and probably superior, to sunlight for purposes of photography.

"3. No burner now made will consume acetylene gas economically, irrespective of cost, and the invention of a burner with small enough apertures is the first serious obstacle to be overcome before the gas can be tested in comparison with ordinary illuminating gas.

"4. Pure sectylene gas, when burned as an illuminant, makes bright colors brighter and dark colors darker; it might be used in a ballroom, never in a library or ordinary sitting room, never in a library or ordinary sitting room, never in a library or ordinary sitting though not apparently, lavender in color, and thus distorts daylight shales.

"5. If carbide of calcium, from which acetyene is now obtained, can be produced at \$45 at in. or less, acetylene gas can be used commercially in a limited field."

When the remarkable stories were first started which were designed to lay the foundation for the present stock operations it was amounced as soon as calcium carbide was in market every housekeeper would be embancipated from his dependence upon the gas companies. All he would have to do would be to throw a handful of carbide into a bucket of water and carry the resultant acetylene into the gas pipes of his house.

The dangerous character of a substance like the carbide, which gives off a gas that will make an explosive compound when mixed with air, even when it is only exposed to the moisture usually present in the atmosphere, soon brought about a quasi ruling by the Board of I nderwriters, which is likely to stop householders from fooling with calcium carbide for gas making. Now it is asserted that this difficulty has been solved by putting the gas in liquefied form in steel cylinders under great pressure.

Pressure.
They say:
A specially advantageous property of acctylene is that it is capable of being stored either as a solid in the single of calcie carbide, or as a compressed liquid gas manufactured from the carbide and in the latter state it may be surployed in the latter state it may be surployed in the latter state it may be surployed in the carbide and in the latter state it may be surployed in the carbide and in the latter state in the latter of the carbide state of the carbide in the latter of the same state of the carbide in the latter of the same state of the carbide in the latter of three will contain enough acctylene to light an ordinary ten to thirteen room dwelling in this latter for three will contain enough acctylene to gight an ordinary the for thirteen room deciling in this latter for three will contain enough acceptance of \$3.000 feet of ordinary illuminating gas of \$24 candle newer.

Smaller cylinders, 4 inches in diameter and 7 inches long, fitting ordinary table-lamp stands in place of the usual oil reservoirs, may be served to houses in cases, just as mineral water siphons are now served. One of these will contain enough gas to troduce the equivalent of three ordinary sas furners for thirty hours. Twelve would last a person burning gas five hours per night three months. This application is now under way for household purposes.

equivalent of three ordinary gas turners for thirty hours. Twelve would last a person burning gas five hours per night three months. This application is now under way for household purposes.

Before householders, railway masgnates, and steamship companies take up with this form of lighting they have got to settle several questions besides the practical ones even of cost and of burners to consume the acetylene without smoke. The most important one of these is regarding safety. Speaking of this a writer in the Journal of Commercer says:

"Regarding the explosive characteristics of seetylene, it is to be regretted that they have not been more fully investigated. Setting aside the cost of manufacture, should the gas show explesive violence above that of other hydrocarbon gases, this would probably prove sufficient cause to preclude its use for illuminating purposes. As a general rule, mixtures of combustible gases with just sufficient or slight excess of oxygen may be exploided without risk in an open rlass cylinder, provided the latter is of uniform diameter and not constricted at the neck. Acetylene, however, forms an exception, and in an experiment with this gas the containing cylinder was shattered. It therefore seems necessary to be cautious in dealing with explosive mixtures of acetylene.

"When acetylene is subjected to a pressure of 21.5 atmospheres at 0 deg. Cent. it condenses to a colorless liquid. In this form it is sumplied to the market, and should be regarded with some apprehension, as it is stated that acetylene is decomposed by a shock such as that produced by the explosion of a percussion cap, and therefore it is dangerous to store it under pressure in bulk."

If the cylinders of compressed acetylene are liable to how up like stleks of dynamite, the field for their use in lighting will probably not be very large.

One other matter besides these to which attention has just been called will have also to be

field for their use in lighting will probably not be very large.

One other matter besides these to which attention has just been called will have also to be considered by the people who buy the stocks which are about to be offered. It is one which does not much concarn the promoters, who are after the people's money. This relates to the legal value of the inventor's claims upon which the patents rest which have been secured by the Electro Gas Company and the Dickerson-Suckert Company. In Europe the making of carbide goes on without depending upon or in any way regarding these patents. The Engisecring and Mining Journal says: "Mr. Dickerson-secring and Mining Journal says: "Mr. Dickerson-secri

son, counsel to the Electro Gas Company, emphatically and wisely declines to express any opinion on the walldity of these or any other patents, and prudently says that the only proof of the validity of a patent is the decision of the highest count."

patents, and prudently says that the only proof of the validity of a patent is the decision of the highest court."

The technical papers abroad have also given much attention to the carbide subject, and upon the question of who "invented." It. Industries and Iron of London, says:

"The "inventors of catcic earbide are muttiplying. Dismissing the claims of Wohler, who, being dead, is not able to speak for himself, we have two original inventors of the carbide, Molssan and Willson, who, however, are now supplemented by a third. In the Deutche Submissions Angiger it is related that Herren Sohns and K. Kastner of Rossleben and Halle respectively, have invented a neuer Leuchtsoff, otherwise calciumcarbidlicht, and have taken out a patent for the same. It is evident that the inventive position of this new discovery is becoming rather complicated, especially when some interesting observations appearing on the other side of the Atlantic with respect to the validity of the Willson patent are taken into account."

THE STAGARA PALLS PLANT.

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THE NIAGARA FALLS PLANT.

A correspondent writes to THE SUR from Niagara Falls as follows:

"I got your letter to-day and the accompanying circular about the Wilson Laboratory Company. This acctylene gas business has, as you know, been tremendously boomed, and everyone has heard about it. One would think that a great revolution in lighting was about to occur, and that this invention of carbide of calcium was, I believe, dirst discovered in 1830, but was not thought anything of except as a curiosity.

"As to who rediscovered it lately there is much doubt. I know of four people who claim that they are the original discoverers. One of these is Willson, another a patent lawyer in Virginia, a third Mr. Moorehead, who is connected with the carbide company, and fourth a Mr. Price, also connected with this company. I imagine that Price and Moorehead have been employed in the company see as to avoid having them squabbling about who was the original inventor. It really is rather amusing to hear these different claims.

"As regards the Carbide Manufacturing Company, I believe it is a 'fake.' In the first place, they have made a good many statements which are undoubtedly faise. It is a mere question of figures as to whether the carbide can be produced at such price as to be used in the extensive way they pretend it will be used, and the figures show that the statements are faise. After all the loud talk about what they were going to do, they have put up a miserable little factory here, and will start by using 1,000-horse power. They say, further, that they will not charge more than \$25 a ton for the carbide. They also state that they can make it at the rate of one pound for every two horse-power hours, I am uretty sure this is a downight lie, for it is doubtful that, even supposing they could use all the heat of the electric are, and that of course is impossible, they would give them \$144 a day. Deduct from this \$50, wh

Watehmakers and Electricians Say Many Watches Are Mugnetized on Trolley Cars. From the Philadelphia Press.

One of the worst enemies of good timepieces is electricity. Next to letting a watch drop out of a fifth-story window there is no surer way of demoralizing a timepiece than to venture with near some powerful electro-generating machine. This danger has become so generally ecognized that in many large electrical plants there are signs posted varning the visitor, if he cares for his watch, to leave it outside. Yet there are hundreds of people who never go near an electric dynamo, and yet find their watches going astray in a most unaccountable fashion. Visiting the watchmaker they find that it has been mysteriously magnetized. Tell the general run of people that the watch was magnetized and deranged from being carried in a trolley car and they will probably be much surprised. Yet the facts are strong in confirmation of such a statement.

Inquiry among many of the representative watchmakers of the town shows that on the average two and a half times as many magnetized watches are brought in now for repair as was taken in two years ago, when the trolleys had not been introduced.

"Probably 50 per cent, of the watches brought into us for repair," said a prominent watchmaker, "are those which have been deranged by being magnetized. The subject has intersted me very much. I may safely say that before the trolleys were introduced we did not nave half as many magnetized watches."

A magnetized watch will play queer pranks and gain five to ten minutes a day for weeks. Then it will slow up as though out of breath and or so minutes a fortnight. All these pranks are or so minutes a fortnight. All these pranks are caused by the subtle influence of the electric field on the steel parts of the delicate watch works. When the lairarping becomes hardened by the magnetism the watch will gain time, when friction between the delicate parts of the works is increased by the magnetic influence, the watch will lose time. There is no accounting for the pranks that are played. The magnetism may spread from one part of the works to the other, and each part in turn may become especially charged, producing different results in the going power of the watch from time to time. Some watches are more liable to be magnetized than others, and when brought into telling when any watch is going to succumb. Anybody can tell whether his or her watch is magnetized or not by passing a small pocket widently three is magnetized and assume a swincing motion from side to side. "I think it is undenlable that many watches are hold in magnetized in the trolley cars. I come in contact with large numbers of motor are not. Electricity may, and it think does, spread from these parts through the cars, it is not. Electricity may, and it think does, spread from these parts through the cars, it is not. Electricity may, and it think does, spread from these parts through the cars, it is not contact with large numbers of motor are not. Electricity may, and it think does, spread from these parts through the cars. I should say that the works become subjected to the electrical point of the process of stronging and provided the pro jog along at an easy pace, dropping back a dozen caused by the subtle influence of the electric time. Some watches are more liable to be magnetized than others, and when brought into proximity with electrical conditions there is no telling when any watch is going to succumb. Anybody can tell whether his or her watch is magnetized or not by passing a small pocket compass around the case. If the needle swerves violently there is magnetism in the steel springs of the case, at least. Now reat the compass above the balance wheel, and if the works are magnetized, the needle will rotate rapidly and assume a swinging motion from side to side, keeping time with the balance wheel below it.

A practical electrician, when questioned as to the probable effect of the trolley cars on the watches of riders, said:

"I think it is undeniable that many watches are being magnetized in the trolley cars. It came in contact with large numbers of motormen and conductors, and they generally complain that their watches are put out of order by the electricity in the car. It is natural that if anybody's watch suffers by the trolley it will be a motorman's or conductor's. When the wires on the cars are insulated the tracks, pole, and motor are not. Electricity may, and I think does, spread from these parts through the car, and entering the body of the passengers centres itself in the very magnetizable steel parts of his watch works.

"I should say that the worst place to sit in the car, so far as watches are concerned, is directly over the motor. The worst effect on the watch

itself in the very magnetizable steel parts of his watch works.

"I should say that the worst place to sit in the car, so far as watches are concerned, is directly over the motor. The worst effect on the watch is reached when the car stops and is started again; for it is by this process of stouping and starting the current that a horse-hoe magnet obtains its magnetic attraction. Each piece of steel in the works become subjected to the electrical condition just as does the horseshoe magnet. Why all watches are not magnetized in the trolleys it is hard to say, but that some watches are magnetized may be granted. As gold is a better conductor of electricity than silver, and as silver is better than nickel. It follows that a nickel case watch is less liable to be magnetized, since it is the poorest conductor. Excellent non-magnetizable watch works would be made of platina, if that were possible.

"Whether there are any conditions that make the magnetism of watches in trolley cars more or less likely I cannot say. If the conditions were powerful enough to exert any induence I should say that magnetism was more likely to take place in damp weather than in dry; and in summer more than winter, for then the clothes are moist from perepiration. Of two people, the one who offers the most body resistance to the electricial current is the least likely to have his watch affected. If a person wears rubbers and insulates himself from the floor of the car his body is more apt to accumulate electricity, which may strike the watch. But all these conditions probably exert a very slight influence on the magnetization."

Some very interesting experiments have been made on the question. One watchmaker found that after placing his pocket compass on his line in a moving trolley car the needle was violently rotated every time the car stopped and started. The rotation was caused by the increased effect of the electricity at these moments on the needle and shows the greater probability of magnetization of the watch at those times. It is s

NEW WAYS OF LIFE. mething There Was in Mer Life, Is Complete, Imperfect, Unfatched."

What a very pretty woman she was.

John Preston had been talking to her, or with her, for an hour, and though he had never heard of her until that evening, and the tur-moil and tragedy of a great society function were roaring all about him, he had not found it difficult to give to her his absolute attention. Indeed, he was absorbed in her; so absorbed that he did not even know her name, and cared less. It was the woman herself as the Creator had made her, not the label man had put upon her to designate who or what she was, that was exerting this influence upon him.

"Have you ever heard of Miss Park of Chicago?" she asked him, after they had begun o reach out into the realm of acquaintanceship to bring to their growing interest in each other "is she of the Lincoln Park or Jackson

Park families?" he inquired lightly. She turned her eyes on him pleadingly. "Oh," he hastened to apologize, "I your pardon. I forgot I was in Chicago. You thow I have been living in Boston for a year

and have fallen into the intellectual habits of that town." The apology was almost as reprehensible as

the offence, but she nodded her acceptance of i and took up the thread of her inquiry. "She was a lovely girl, so pretty-

She arched her eyebrows, half pleased, half

She arched her eyebrows, half pleased, half disapproving.
"So pretty," she went on, 'that the men raved over her, and so sweet and kindly of manner and careful of speech that the wonnen loved her. She was such a girl as you would have worshipped, and I fancy she would have made a hero of you, for you are such a man as I have heard her say that man must be who could fill to the brim the measure of her ideal."

Preston felt the force of this covert compliment and would have made some reply, but she did not give him time.

I think," she continued, somewhat hurriedly, "that you spoke of having lived in Boston. Did you ever know..."

The hostess interrupted her.

riedly, "that you spoke o."

ton. Did you ever know—"
The hostess interrupted her.
"Oh, Mrs. Terhune," she exclaimed, "have you seen my husband? He was looking for you some time ago, and I want to see him about a carriage for Miss Bertrand. I'm awfully sorry to interrupt this charming tête-à-tête, but it could not possibly be helped."
"We'll pardon it." laughed Preston, "if you will tell your husband not to repeat the misdemeanor."

will tell your husband not to repeat the insidementary."

The hostess laughed. Mrs. Terhune blushed charmingly, and assured the lady she had not seen her husband, and Preston wondered if there were a Mr. Terhune to make a night-mare of this delightful dream of his. "You were going to ask?" began Preston, as the hostess departed.

"Whether," resumed Mrs. Terhune. "you had ever known in Boston any one of the name of tiroton."

"Whether," resumed Mrs. Terhune. "you had ever known in Hoston any one of the name of Groton."

"I knew slightly an elderly woman of that name who lived with some distant relatives of mine," said Freston, after thinking a moment. "In fact, I might say she was an old woman." "Ind she a son."
"Not that I ever heard of. But she may have had a dozen," added Preston.
"She had one," said Mrs. Terhune, so coldly that it almost sent a chill down Preston's back. "How do you know?" he asked in so much surprise that the oddness of his reply did not occur to him.
"I married him," she answered frankly. Preston was startled by this confession, for it came to him as a confession, nowithstanding marriage as a rule is not one of the hidden secrets of a man or a woman's life. It was her manner, perhaps, that affected him, and, perhaps, it was the fact that she was now Mrs. Terhune.
"But you are not Mrs. Groton?" he said, inquiringly.
"Oh no" and now she laughed with, black."

perhaps, it was the fact that she was now Mrs. Terhune.

"But you are not Mrs. Groton?" he said, inquiringly.

"Oh, no," and now she laughed with a lightness that might have been nervous, "you must understand that it is possible in this country for a woman to marry again, and I married again. Edward Groton, "she said in a harsher tone than Preston thought such a sweet mouth could frame, "was my first husbond. I was only Is then, and the world was very fair to me. So fair that I thought all who composed it were fair. I am older now—"

"Not a great deal," he interrupted softly.

"Oh, ves, a great deal," he interrupted softly.

"Oh, ves, a great deal," he interrupted softly.

"Three or four years, perhaps?" and there was a question in this remark of his, for he had been wondering how old she was.

"Both," she said, with a candor unusual among women on a point of age, "and then a few years. I am thirty."

The answer preased him, for he was 40, although he never confessed it.

"The wost delightful period in a woman's life," he said heartily.

"Thank you," she smiled very gently. "But may I go on with my story?"

"Really, I beg your pardon," he said, "but my interest in your present makes me forget the interest I should have in your past. You were saying the world was fair to you in those first days. Is is not so now?"

"On y as one catches glumpses of the light. Then I was all sunshine; now there are gray chuds. Yet I have not lost all my trust in man, and there are moments when even the bitterness that has tinctured my life disappears, and I feel that there is still sweetness in the cup."

Preston experienced an impulse to draw nearer to her and be vielded to the recomments.

LIFE IN JOHANNESBURG.

MORE ABOUT THE METROPOLIS OF THE TRANSVAAL,

A Cosmopolitan Town of Strange and Start-ling Contraste-Righ Living Regardiese of Expense-Most Cheap, Bread Bear-Faseinations Which Obtain a Strong Hold

From the Home Journal.

The Transvaal and its wonderful cosmopolitan centre, Johannesburg, are just now of greater interest than ever. Emigration there from all enterprising civilized nations is still on the increase. Let us see what the country with its capital is like-its people, life, commerce, and advantages for settlers. First, to get there. 'The railway journey from

Cape Town to Johannesburg of about three days is through a seemingly endless, sandy country, with range succeeding range of distant mou tains, all alike, and strikes a greater sense of vastness and desolation than an expanse of naked ocean itself. First and second class have sleeping accommodation, the third being kept for blacks and the lowest class Dutch. Well, we reach Johannesburg, which has not even yet, with all its wealth, a covered-in railway station; while, by way of contrast in the progress of the place, just across the road is a huge club, with tennis, cricket, football, and cycling grounds, gymnasium, military band, halls for dancing, operas, oratorios, &c., which will bear comparison with any you please. Its members are millionaires and clerks, lodgers and their lodging house keepers, all equal there; for we have left behind caste, cliques, and cathedral cities, and are cosmopolitan, or, in a word, colonial. An institution like this gives us the state of society there in a nut shell, for, as wages are very high, any one in anything like lucrative employment can belong to it; and the grades in society are determined by money, and money only.

Johannesburg, the London of South Africa, which was nine years ago barren veldt, eight years ago a miners' camp, is now the centre of some one hundred thousand inhabitants, and increasing about as fast as bricks and mortar can be obtained. It is situated directly on ton of the gold, and, on looking down from the high ground above, it looks to an English eye like a huge, long-drawn-out mass of tin sheds, with its painted iron mine chimneys running in a straight line all along the quartz gold reef as far as you can see in either direction. The largest or main reef runs for thirty miles uninterruptedly, gold-bearing and honeycombed with mines throughout. This, even were it alone, could speak for the stability and continued prosperity of the Transvaal gold trade, On a mail steamer arriving only a few days ago from the Cape was said to be between £300,000 and £400,000 worth of gold, and the newspapers show that usually about £100,000 worth is consigned by each mail boat.

As we enter the town we find fine and well-planned streets, crossed at places with deep gutters-gullies rather-to carry off the water, which is often, in the heavy summer rains, deeper than your knees. Crossing these at a fast trot, the driver never drawing rein, the novice is shot about in his white-covered twowheeled cab, with its large springs, like a pea in a bladder. Indeed, one marvels at the daintily-dressed habitué of the place being swung through similarly, quite unconcerned, and without rumpling a frill. We pass fine public buildings, very high houses and shops-somewhat jerry-built, it is true, and goodness help them in the event of a large street fire-but now being added to or replaced by larger and more solid buildings. Indeed, bricks cannot be de fast enough for the demand, both there and in some of the outlying Transvaal towns. where the "gold boom" is on. There are lofty

sor being added to or replaced by larger and the thing that present mouth could frame, whe my first headond, we can be the county of the count